

Trend Study 10R-12-00

Study site name: Horse Ridge .

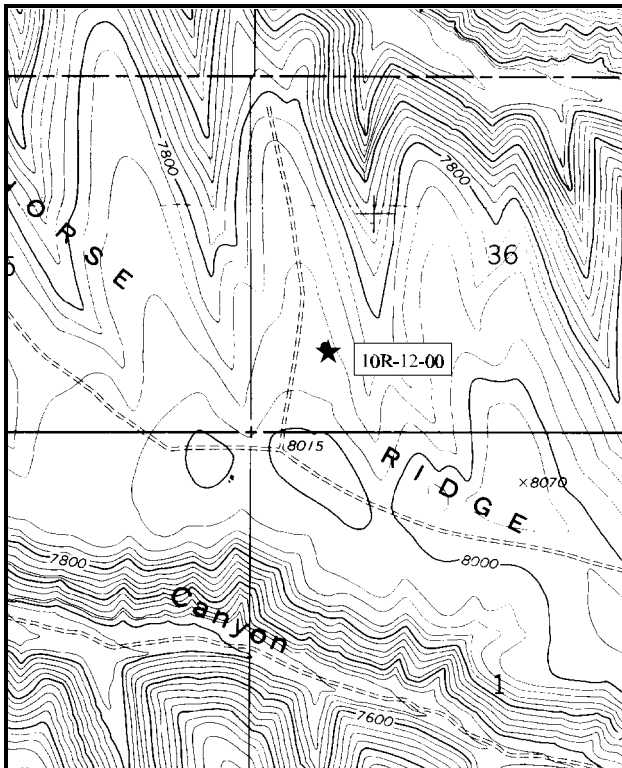
Range type: Mixed Mountain Brush

Compass bearing: frequency baseline 158°M.

Footmark (first frame placement) 5 feet. Frequency belt placement; line 1 (11ft), line 2 (34ft), line 3 (59ft), line 4 (71ft), line 5 (95ft).

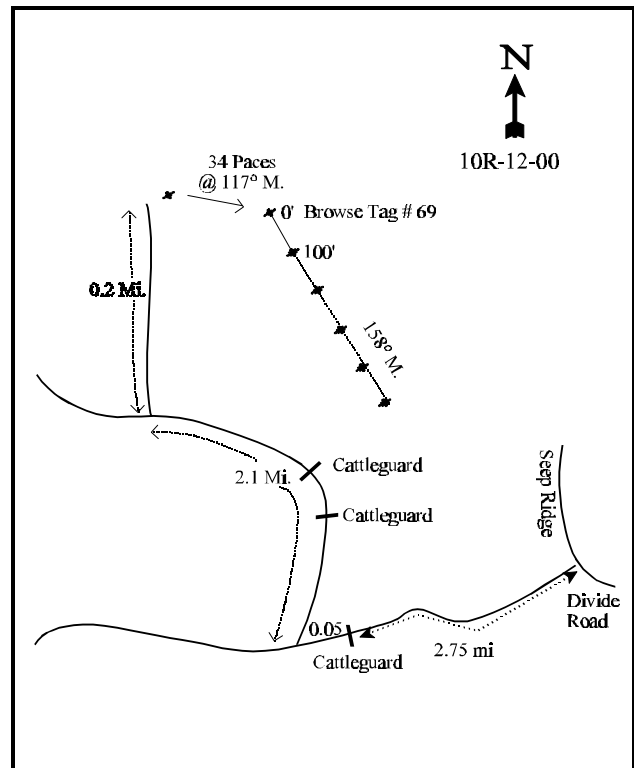
LOCATION DESCRIPTION

From the intersection of Divide road and Seep Ridge, turn west off of Divide road. Drive down this road 2.75 miles to a cattle guard. Proceed 0.05 miles, turn right (north) and drive 2.1 miles crossing two cattle guards. At this point there is a fork. Take the right fork for 0.2 miles to a witness post on the right side of the road. The 0-foot stake is 34 paces from the witness post at 117°M. The study is marked by green, steel fenceposts approximately 12-18 inches in height. The 0-foot stake is marked by browse tag number 69.



Map name: P R Spring .

Township 15 ½ S, Range 23 E, Section 36



Diagrammatic Sketch

UTM 4368302.831 N, 643199.342 E

DISCUSSION

Trend Study 10R-12

The Horse Ridge trend study is located on Horse Ridge about 2½ miles west of the Seep Ridge Road and Divide Ridge Road intersection. The site has a slope of 5-10% with a slight northwest aspect and an elevation of approximately 7,900 feet. The area is dominated by mixed mountain brush, which includes serviceberry, bitterbrush, and mountain big sagebrush. Pellet group data indicated moderate big game use in 1997 with an estimated 71 elk and 68 deer days use/acre (175 edu/ha and 168 ddu/ha). Use was lighter in 2000 with 45 elk, 47 deer and 3 cow days use/acre estimated (111 edu/ha, 116 ddu/ha and 7 cdu/ha).

Soil at the site is moderately deep with an effective rooting depth of over 19 inches. It has a clay loam texture with a moderately acid soil reaction (5.9 pH). Soil organic matter is very high at 11%. There is little rock or pavement on the surface and percent bare ground is low. Some soil pedestaling is evident under shrubs, but the site has a low erosion potential due to the levelness of the terrain combined with the abundant vegetation and litter cover.

The area supports a variety of useful browse species including serviceberry, mountain big sagebrush, bitterbrush and snowberry. The most numerous browse is mountain big sagebrush which provides half of the browse cover with an estimated density of 7,380 plants/acre in 2000. They show light to moderate use, good vigor, and low decadence. Reproduction is good with a biotic potential (# of seedlings) at 13% and young plants making up 18% of the population.

Bitterbrush is the next most abundant preferred species. It currently ('00) provides 27% of the browse cover with an estimated density of 2,960 plants/acre. These plants were classified with moderate to heavy hedging in 1997 with many of the plants exhibiting a clubbed appearance. Some of the current years growth was protected by dead stems on the outer portions of the plants making it partially unavailable to browsing. During the 2000 reading, use was classified as heavy (>60% of stems browsed) on 74% of the population and nearly 30% of the bitterbrush were considered unavailable due to heavy browsing growth form. Even with this heavy use, vigor is good and percent decadence low. These bitterbrush have a prostrate growth form with an average height of only 14 inches. Some plants appear to be layering (vegetative reproduction) as well as reproducing from seed.

Serviceberry is visually more noticeable because of its height, averaging four to five feet in height with a crown of five feet. These plants exhibit good vigor and low decadence with moderate to heavy hedging. Some of the current years growth is protected by dead stems on the outer portions of the plants, making much of it unavailable to browsing. Snowberry is also present with an estimated density of over 1,000 plants/acre. Some showed moderate to heavy use in 1997, while use in 2000 was mostly light. Vigor is good and there are few decadent plants.

Grasses and forbs are diverse and abundant. The most abundant grass is mutton bluegrass which provided 30% of the grass cover in 1997, increasing to 50% in 2000. Other common grasses include: thickspike wheatgrass, a sedge, Kentucky bluegrass, and needle-and-thread grass. Some use was noted on grasses in 1997 but not in 2000. Twenty five species of forbs were sampled in 1997 and 27 in 2000. The most abundant forbs are low growing species, rose pussytoes and longleaf phlox.

1997 APPARENT TREND ASSESSMENT

Soil is classified as a clay loam with abundant vegetative and litter cover. Erosion potential is low due to the slight slope and well disbursed vegetative and litter cover. This site appears to receive use by elk and deer but may be too far removed from water to be utilized by livestock. Mountain big sagebrush appears to be stable at

this time with good biotic potential and many young plants in the population. Bitterbrush exhibits a mostly mature population with a clubbed appearance. Although these plants show moderate to heavy hedging, they still show good vigor with only one decadent plant classified as dying. The large serviceberry plants dominate the landscape because of their size. They appear to be moderate to heavily hedged. The dominate grasses encountered are muttongrass and thickspike wheatgrass, which all showed recent utilization. Many of the forbs encountered are caespitose and do not provide much forage.

2000 TREND ASSESSMENT

Trend for soil is fairly stable with abundant vegetation and litter cover protecting the soil. There is little bare ground on the site and no noticeable erosion. Trend for the key browse species, Utah serviceberry, mountain big sagebrush, and bitterbrush is stable. Use is heavy on most of the bitterbrush and some of the serviceberry but vigor is good, percent decadence low, and reproduction adequate. Due to the mild winters of the past couple of years, it appears that sagebrush is only being lightly utilized at the present time. Sagebrush also shows good vigor, low decadence, and excellent reproduction. Trend for the herbaceous understory is stable. Sum of nested frequency of perennial grasses has declined slightly while frequency of perennial forbs has increased slightly. The biggest change is the significant decline in nested frequency of thickspike wheatgrass.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - stable (3)

HERBACEOUS TRENDS --

Herd unit 10R, Study no: 12

Type	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'97	'00	'97	'00	'97	'00
G	Agropyron dasystachyum	252	*76	74	32	3.03	.50
G	Bromus anomalus	-	1	-	1	-	.00
G	Carex spp.	77	70	35	31	2.00	2.02
G	Koeleria cristata	46	45	18	15	.48	.70
G	Poa fendleriana	288	295	80	77	3.47	8.97
G	Poa pratensis	62	46	21	12	1.85	2.92
G	Poa secunda	-	*19	-	7	-	.08
G	Stipa comata	27	*50	10	13	.79	2.86
Total for Annual Grasses		0	0	0	0	0	0
Total for Perennial Grasses		752	602	238	188	11.64	18.08
Total for Grasses		752	602	238	188	11.64	18.08
F	Agoseris glauca	7	*27	5	12	.02	.57
F	Antennaria rosea	126	133	46	44	5.01	3.18
F	Androsace septentrionalis (a)	3	5	3	2	.01	.01
F	Arabis spp.	-	*12	-	4	-	.02

Type	Species	Nested Frequency		Quadrat Frequency		Average Cover %	
		'97	'00	'97	'00	'97	'00
F	<i>Arenaria fendleri</i>	50	*67	16	21	.91	1.97
F	<i>Astragalus convallarius</i>	31	41	16	16	.37	.55
F	<i>Astragalus tenellus</i>	33	*17	16	11	.40	.72
F	<i>Aster</i> spp.	5	9	3	4	.04	.02
F	<i>Astragalus utahensis</i>	-	2	-	1	-	.03
F	<i>Balsamorhiza sagittata</i>	21	*7	11	4	.21	.08
F	<i>Castilleja linariaefolia</i>	-	1	-	1	-	.00
F	<i>Calochortus nuttallii</i>	2	-	1	-	.00	-
F	<i>Comandra pallida</i>	23	30	12	17	.13	.16
F	<i>Collinsia parviflora</i> (a)	39	-	18	-	.14	-
F	<i>Crepis acuminata</i>	63	78	33	39	.42	.58
F	<i>Delphinium bicolor</i>	1	-	1	-	.00	-
F	<i>Eriogonum alatum</i>	-	2	-	1	-	.00
F	<i>Erigeron eatonii</i>	62	*33	32	13	.38	.06
F	<i>Erigeron pumilus</i>	-	*23	-	12	-	.16
F	<i>Eriogonum umbellatum</i>	29	*43	12	18	.57	.92
F	<i>Lesquerella</i> spp.	-	4	-	1	-	.00
F	<i>Linum lewisii</i>	3	8	2	3	.03	.06
F	<i>Lupinus argenteus</i>	9	9	4	7	.08	.20
F	<i>Lychnis drummondii</i>	-	3	-	1	-	.00
F	<i>Penstemon caespitosus</i>	33	*-	13	-	.70	-
F	<i>Pedicularis centranthera</i>	7	-	3	-	.04	-
F	<i>Penstemon watsonii</i>	3	*45	2	18	.01	.70
F	<i>Phlox longifolia</i>	107	145	49	55	.49	.82
F	<i>Polygonum douglasii</i> (a)	89	*5	36	1	.18	.00
F	<i>Senecio integerrimus</i>	44	*-	19	-	.27	-
F	<i>Sphaeralcea coccinea</i>	2	-	1	-	.00	-
F	<i>Taraxacum officinale</i>	50	*28	24	12	.76	.13
F	<i>Thlaspi</i> spp.	-	4	-	2	-	.01
F	<i>Tragopogon dubius</i>	-	2	-	1	-	.00
F	Unknown forb-perennial	19	*-	6	-	.30	-
Total for Annual Forbs		131	10	57	3	0.33	0.01
Total for Perennial Forbs		730	773	327	318	11.20	11.01
Total for Forbs		861	783	384	321	11.53	11.03

* Indicates significant difference at % = 0.10

BROWSE TRENDS --

Herd unit 10R, Study no: 12

Type	Species	Strip Frequency		Average Cover %	
		'97	'00	'97	'00
B	Amelanchier utahensis	35	39	4.67	4.26
B	Artemisia tridentata vaseyana	92	93	16.44	25.25
B	Chrysothamnus depressus	0	1	-	.03
B	Chrysothamnus viscidiflorus viscidiflorus	42	53	1.00	.87
B	Purshia tridentata	60	74	8.35	12.19
B	Symphoricarpos oreophilus	28	33	2.30	1.96
B	Tetradymia canescens	4	5	.15	.36
Total for Browse		261	298	32.93	44.93

CANOPY COVER --

Herd unit 10R, Study no: 12

Species	Percent Cover
	'00
Amelanchier utahensis	.40

BASIC COVER --

Herd unit 10R, Study no: 12

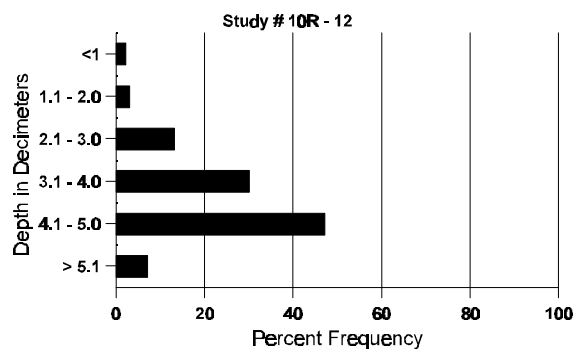
Cover Type	Nested Frequency		Average Cover %	
	'97	'00	'97	'00
Vegetation	472	452	44.94	62.26
Rock	10	9	.04	.03
Pavement	63	61	.95	.17
Litter	498	488	66.99	75.81
Cryptogams	72	23	.59	.41
Bare Ground	180	189	6.67	12.63

SOIL ANALYSIS DATA --

Herd Unit 10R, Study no: 12

Effective rooting depth (inches)	Temp °F (depth)	PH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
19.2	59.2 (16.7)	5.9	35.3	34.2	30.5	3.54	11.1	160.0	0.47

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 10R, Study no: 12

Type	Quadrat Frequency		Pellet Transect			
			Pellet Groups per Acre		Days Use per Acre (ha)	
	'97	'00	'97	'00	'97	'00
Rabbit	1	12	17	244	N/A	N/A
Elk	28	22	922	583	71 (175)	45 (111)
Deer	19	16	887	609	68 (168)	47 (116)
Cattle	-	-	17	35	1 (2)	3 (8)

BROWSE CHARACTERISTICS --

Herd unit 10R, Study no: 12

A Y G R E		Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Amelanchier utahensis																		
S	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
Y	97	7	11	-	7	-	1	-	-	-	26	-	-	-	520		26	
	00	22	1	-	5	1	6	6	-	-	41	-	-	-	820		41	
M	97	-	9	8	1	7	-	-	-	-	25	-	-	-	500	51	59	
	00	-	1	1	3	6	5	4	-	-	18	1	1	-	400	60	55	
D	97	-	-	2	-	-	-	-	-	-	2	-	-	-	40		2	
	00	-	-	-	-	-	1	2	-	-	2	-	-	1	60		3	
X	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		51%			21%			00%			+17%							
'00		14%			20%			03%										
Total Plants/Acre (excluding Dead & Seedlings)														'97	1060	Dec:	4%	
														'00	1280		5%	

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches)		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4		Ht.	Cr.	
Artemisia tridentata vaseyana																		
S	97	31	-	-	-	-	-	-	-	-	31	-	-	-	620		31	
	00	46	-	-	3	-	-	-	-	-	49	-	-	-	980		49	
Y	97	48	5	-	3	-	-	-	-	-	56	-	-	-	1120		56	
	00	63	-	-	1	-	1	-	-	-	65	-	-	-	1300		65	
M	97	91	84	5	-	-	-	-	-	-	180	-	-	-	3600	27	36	
	00	216	21	-	2	-	2	1	-	-	236	3	3	-	4840	27	30	
D	97	2	1	-	-	-	1	-	-	-	1	-	-	3	80		4	
	00	43	11	-	8	-	-	-	-	-	59	-	-	3	1240		62	
X	97	-	-	-	-	-	-	-	-	-	-	-	-	-	860		43	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	660		33	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		38%			03%			01%			+35%							
'00		09%			.81%			02%										
Total Plants/Acre (excluding Dead & Seedlings)												'97	4800	Dec:	2%			
												'00	7380		17%			
Chrysothamnus depressus																		
M	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	00	-	-	-	2	-	-	-	-	-	2	-	-	-	40	2	4	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		00%			00%			00%										
'00		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'97	0	Dec:	-			
												'00	40		-			
Chrysothamnus viscidiflorus viscidiflorus																		
Y	97	4	-	-	-	-	-	-	-	-	4	-	-	-	80		4	
	00	36	-	-	4	-	-	1	-	-	41	-	-	-	820		41	
M	97	78	-	-	-	-	-	-	-	-	78	-	-	-	1560	11	12	
	00	112	-	1	5	-	-	1	-	-	119	-	-	-	2380	10	9	
D	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	3	-	-	-	1	-	-	-	-	2	-	-	2	80		4	
X	97	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		00%			00%			00%			+50%							
'00		.60%			.60%			01%										
Total Plants/Acre (excluding Dead & Seedlings)												'97	1640	Dec:	0%			
												'00	3280		2%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches)		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4		Ht.	Cr.	
Purshia tridentata																		
S	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	00	-	-	-	-	-	-	1	-	-	1	-	-	-	20			1
Y	97	4	5	1	3	-	-	-	-	-	13	-	-	-	260		13	
	00	8	1	-	-	-	-	1	-	-	10	-	-	-	200			10
M	97	-	3	9	10	40	35	-	-	-	97	-	-	-	1940	14	27	
	00	-	1	12	-	14	42	12	-	27	108	-	-	-	2160	14	28	
D	97	-	-	-	-	1	4	-	-	-	4	-	-	1	100		5	
	00	-	-	-	1	-	15	1	-	13	22	-	-	8	600			30
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		43%			43%			.86%			+22%							
'00		11%			74%			05%										
Total Plants/Acre (excluding Dead & Seedlings)												'97	2300	Dec:	4%			
												'00	2960		20%			
Symphoricarpos oreophilus																		
S	97	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
Y	97	9	2	-	5	-	-	-	-	-	16	-	-	-	320		16	
	00	26	-	-	3	-	3	2	-	-	34	-	-	-	680			34
M	97	12	6	6	15	-	-	-	-	-	39	-	-	-	780	13	20	
	00	19	-	-	4	-	-	4	-	-	27	-	-	-	540	14	19	
D	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		15%			11%			00%			+11%							
'00		00%			05%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'97	1100	Dec:	0%			
												'00	1240		2%			
Tetradymia canescens																		
M	97	2	-	1	1	-	-	-	-	-	4	-	-	-	80	13	14	
	00	-	-	-	-	-	-	-	-	-	-	-	-	-	0	16	14	
D	97	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	00	2	-	-	3	-	1	-	-	-	6	-	-	-	120			6
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'97		00%			25%			00%			+33%							
'00		00%			17%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'97	80	Dec:	0%			
												'00	120		100%			